Side	Item	Acceptable/ Rejectable	Cause	Prevention Measures
1	1A-1	Acceptable	N/A	N/A
1	1A-2	Acceptable	N/A	N/A
1	1A-3	Acceptable	N/A	N/A
1	1A-4	Acceptable	N/A	N/A
1	1A-5	Acceptable	N/A	N/A
1	1A-6	Acceptable	N/A	N/A
1	1A-7	Acceptable	N/A	N/A
1	1A-8	Acceptable	N/A	N/A
1	1A-9	Acceptable	N/A	N/A
1	1A-10	Acceptable	N/A	N/A
1	1A-11	Acceptable	N/A	N/A
1	1B-1	Acceptable	N/A	N/A
1	1B-2	Acceptable	N/A	N/A
1	1B-3	Acceptable	N/A	N/A
1	1B-4	Acceptable	N/A	N/A
1	1B-5	Acceptable	N/A	N/A
1	1B-6	Acceptable	N/A	N/A
1	1B-7	Acceptable	N/A	N/A
2	2A-1	Rejectable	1) Improper Bead Sequence (outside fillet) 2) Grossly Overwelded	Refer to M5350 for proper weld bead sequence, reduce weld size
2	2A-2	Rejectable	1) Misalignment 2) Angular distortion	Balance heat input across seam, fully restrain plate prior to welding
2	2A-3	Rejectable	1) Angular Distortion 2) Overwelding	Balance heat input across weld joint, reduce weld size on outside fillet
2	2A-4	Acceptable	N/A	N/A
2	2A-5	Rejectable	1) Angular Distortion 2) Overwelding	Balance heat input across seam, reduce weld size on outside fillet
2	2A-6	Rejectable	1) Incomplete Weld (Backside butt) 2) Under-fill (Outside butt)	Completely fill weld joint
2	2B-1	Rejectable	1) Misaligned Top Piece 2) Poor Fit-Up 3) Poor cutting causing fit and weld difficulties 4) Oversized root opening	Strongback if necessary, make tacks of same quality as final weld, grind edges where rough cuts occur

2	2B-2	Rejectable	1) Dishing Distortion 2) Forced-fit insert	Grind base plate opening to allow for insert to be properly placed without force fitting. Generate 1-2mm gap to minimize locked in residual stress when welding
2	2B-3	Rejectable	1) Poor cutting and fit-up 2) Enlarged and inconsistent root gap 3) Poor quality tacks	Grind base plate opening to allow for insert to be properly placed without force fitting. Grind insert to ensure quality seam minimize weld defects. Follow proper tack welding procedures
2	2B-4	Rejectable	1) Misaligned Tee 2) Poor quality tacks 3) Blow through 4) Arc marks	Use rams or proper saddle and wedge techniques to align tee prior to tacking. Follow proper tacking procedures. Reduce voltage to eliminate tack blow-throughs
3	3A-1	Rejectable	1) Tacks have incomplete penetration 2) Tacks have incomplete fusion 3) Melt through	Make sure tacks are aligned properly within seam groove. Decrease voltage to avoid melt through
3	3A-2	Rejectable	1) Misalignment	Ovality misalignment can be corrected by following the pipe fitting procedure specific to ovality issues addressed in the curriculum
3	3A-3	Rejectable	1) Arc marks 2) Undersized weld on top side, will cause rework/additional heat and distortion	Ensure a properly cleaned joint and contact surface to avoid weld defects and arc marks. Use suggested weld parameters to achieve design specified weld size
3	3A-4	Rejectable	1) Lack of Fusion on top weld 2) Overlap 3) Fabrication scars	Properly align weld metal deposit over joint groove, proper alignment with clamping to hold in place and avoid overlap

3	3A-5	Acceptable	N/A	N/A
3	3A-6	Rejectable	1) Improper fit-up	Follow ovality alignment fit-up guidance from curriculum
3	3B-1	Rejectable	1) Undersized weld 2) Misaligned intercostal member	Use suggested weld parameters to achieve design specified weld size, tack weld member in place with tacks sufficiently sized to hold member aligned while welding. Balanced weld size so heat input does not pull member out of square
3	3B-2	Rejectable	1) Bad Tack	Follow tack welding procedures to ensure a tack is made of the correct size and quality as to facilitate incorporation into the final weld without creating defects
3	3B-3	Rejectable	1) Distortion throughout	Follow proper fit and welding practices, minimize weld size on thin members, weld with a balanced sequence across the neutral axis
3	3B-4	Rejectable	1) Pipe ovality misalignment	Follow ovality alignment fit-up guidance from curriculum
3	3B-5	Rejectable	1) Misalignment 2) Cocked joint	Follow correct pipe fitting procedure and tack weld with equal sized tacks and spaced/sequenced as to not pull joint out of alignment prior to welding
3	3B-6	Acceptable	1) Slight overweld	Minimize weld size by following suggested weld parameter settings
4	4A-1	Rejectable	1) Bad weld - spatter (backside fillet)	Check welding parameters (i.e. torch angle/welding position, make sure arc length is not too short) Recommend slightly increasing voltage or reducing wire speed

4	4A-2	Rejectable	1) Overweld (top)	Minimize weld size by following suggested weld parameter settings
4	4A-3	Rejectable	1) Under-fill on cap	Completely fill weld joint
4	4A-4	Rejectable	1) Overweld	Minimize weld size by following suggested weld parameter settings
4	4A-5	Rejectable	1) Poor weld prep 2) Poor fit-up 3) Poor tacks	Sufficiently clean/grind contact surface prior to welding. Fit plate with optimal root gap to avoid overwelding. Ensure tack is made of the correct size and quality as to facilitate incorporation into the final weld without creating defects
4	4A-6	Rejectable	1) Unbalanced heat input 2) Undersized weld (near side fillet) 3) Oversized weld (far side fillet) 4) Undercut (far side fillet)	Take measures to produce welds of equal size across fillet weld joint to avoid angular distortion. Produce design specified weld size by following suggested weld parameter settings. Reduce undercut by avoiding: welding too hot, holding too long an arc, erratic movements, and not pausing long enough on the toes of the welds
4	4A-7	Rejectable	1) Undersized weld	Produce design specified weld size by following suggested weld parameter settings
4	4B-1	Rejectable	1)Bad weld - Spatter (backside fillet) 2) Overweld	Check welding parameters (i.e. torch angle/welding position, make sure arc length is not too short) Recommend slightly increasing voltage or reducing wire speed

4	4B-2	Rejectable	1) Cocked Joint 2) One joint not cleaned/prepped properly	Follow correct pipe fitting procedure and tack weld with equal sized tacks and spaced/sequenced as to not pull joint out of alignment prior to welding. Sufficiently clean/grind contact surface prior to welding.
4	4B-3	Rejectable	1) Undercut	Reduce undercut by avoiding: welding too hot, holding too long an arc, erratic movements, and not pausing long enough on the toes of the welds
4	4B-4	Rejectable	1) Undersized Weld 2) Fabrication scars	Produce design specified weld size by following suggested weld parameter settings
4	4B-5	Rejectable	1)Burn through	Decrease voltage to avoid melt through
4	4B-6	Rejectable	1) Bowing Distortion 2) Overweld	Minimize weld size by following suggested weld parameter settings. Balance heat input and weld size across the seam to reduce unbalanced shrinkage pull and the resulting bowing distortion
4	4B-7	Acceptable	N/A	N/A
4	4B-8	Rejectable	1) Poor weld 2) Scarring 3) Needs cut and redone or scrapped and remade	Take time to correct fit-up and weld with better first-time quality
4	4B-9	Acceptable	N/A	N/A